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# The Mozambique-Zimbabwe Pipeline: Harare's Threatened Lifeline

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A Reference Aid

NGA Review Complete

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ALA 84-10034  
April 1984

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## The Mozambique-Zimbabwe Pipeline: Harare's Threatened Lifeline

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A Reference Aid

This paper was prepared by [redacted] Office  
of African and Latin American Analysis, with a  
major contribution from [redacted] ALA, and

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[redacted]  
[redacted] It was  
coordinated with the Directorate of Operations. [redacted]

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Comments and queries are welcome and may be  
directed to the Chief, Regional Issues Branch, Africa  
Division, ALA [redacted]

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**Secret****The Mozambique-Zimbabwe Pipeline:  
Harare's Threatened Lifeline**

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**Summary**

*Information available  
as of 22 March 1984  
was used in this report.*

This reference aid provides basic information on the petroleum pipeline that runs from the Mozambican port of Beira to landlocked Zimbabwe, and discusses the stockpiling and other measures Zimbabwe has taken to cushion the impact of sabotage and reduce the pipeline's vulnerability to attack. [REDACTED]

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The pipeline is vital to Zimbabwe and economically important to Mozambique. Zimbabwe gets over 90 percent of its petroleum products via the pipeline, and fees from the line are an important source of revenues for the financially strapped regime in Maputo. [REDACTED]

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The pipeline has great symbolic value in the evolving relationship between South Africa and its black-ruled neighbors. Because Zimbabwe's only feasible alternative for meeting its petroleum needs is through South Africa's rail, road, and port network, the pipeline is one of the few means that give substance to the desire of southern Africa's black states to lessen their economic dependence on South Africa. In our judgment, South Africa's periodic sabotage of the pipeline since October 1981 reflects Pretoria's efforts to preserve its regional hegemony and economic leverage. [REDACTED]

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We believe that the easing of attacks on the pipeline over the past year partly reflects the introduction of about 2,000 Zimbabwean troops into Mozambique to guard the pipeline and Pretoria's satisfaction with the modus vivendi it has been working out with Mozambique and to a lesser extent Zimbabwe. The lull might also reflect Pretoria's desire not to create sympathy for Zimbabwe or to incur US displeasure. The understandings between Pretoria and Harare and Maputo are fragile, however, and a breakdown in them could easily lead to a surge in sabotage of the pipeline. Moreover, the pipeline could also be targeted by the South African-fostered Mozambican resistance organization, RENAMO, which has the capability and motivation to act as a spoiler to the thaw at the government-to-government level. As a result, we believe the status of the pipeline will remain a measure of the complex currents at work in the region. [REDACTED]

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## The Mozambique-Zimbabwe Pipeline: Harare's Threatened Lifeline

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### The Setting

#### Zimbabwe's Dependence

The petroleum pipeline from the Mozambican port of Beira to the town of Mutare in eastern Zimbabwe has the capacity—20,000 barrels per day—to deliver over 90 percent of the petroleum products that Zimbabwe needs, including all of its gasoline, diesel oil, and aviation fuel. The remainder, small amounts of paraffin, butane, and motor oil, is transported by rail through South Africa because the quantities are too small for the pipeline and because the two rail lines to Zimbabwe from Mozambique are in disrepair, poorly managed, and frequently sabotaged.

Sanctions were lifted shortly thereafter, and the government headed by Robert Mugabe that came to power in April 1980 encouraged Lonrho to renovate the pipeline to carry refined products while Harare considered the feasibility of reopening the refinery. Although the line was originally scheduled to reopen in late 1981, South African sabotage and the inability of Harare, Lonrho, and Maputo to reach agreement on transport fees and on responsibility for paying insurance premiums on the pipeline delayed operations until June 1982. Since that time, the storage tanks at the Feruka refinery have been used to store petroleum delivered through the pipeline. The refinery itself remains inoperable.

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Harare's primary alternative to reliance on the pipeline is to import fuel from or through South Africa. Zimbabwe could purchase petroleum products from the South African Coal, Oil, and Gas Corporation (SASOL) or transport them by rail from the South African port of Durban or from Maputo via South Africa, but these options are two to four times more costly than use of the pipeline.

The dispute over transport fees was resolved to Zimbabwe's satisfaction. After initial demands that Zimbabwe pay over \$40 per ton in fees, Mozambique and Lonrho agreed to ship fuel on the pipeline for \$24 a ton. Compared with railway charges of about \$60 per ton from Maputo and almost \$100 per ton from Durban, this rate represents a substantial savings for Harare.

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We believe that Zimbabwe has not purchased supplies from the small refinery in neighboring Zambia because its prices are as much as three times higher than at major world refining centers.

Mozambique's stake in having the pipeline in operation is considerably smaller than Zimbabwe's. the Mozambican Government earned about \$10 million in foreign exchange from operation of the pipeline in 1983. Although small, these earnings are important because of the country's desperate need for foreign exchange.

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#### Genesis of the Pipeline

The pipeline, which is owned by the London Rhodesia Corporation (Lonrho), a British firm, and operated by its subsidiary, the Companhia de Pipeline Mozambique-Zimbabwe (CPMZ), first opened in February 1965 to supply crude oil to Zimbabwe's now inoperable refinery at Feruka near Umtali (now Mutare). The refinery, which is owned by a consortium of seven international oil companies, opened in April 1965 but operated for only a few months. In late 1965 the British Government prevailed on Lonrho to shut down the pipeline in order to comply with UN economic sanctions against Rhodesia. This also put the refinery out of business. Both facilities remained closed throughout the Rhodesian civil war, which formally ended in December 1979.

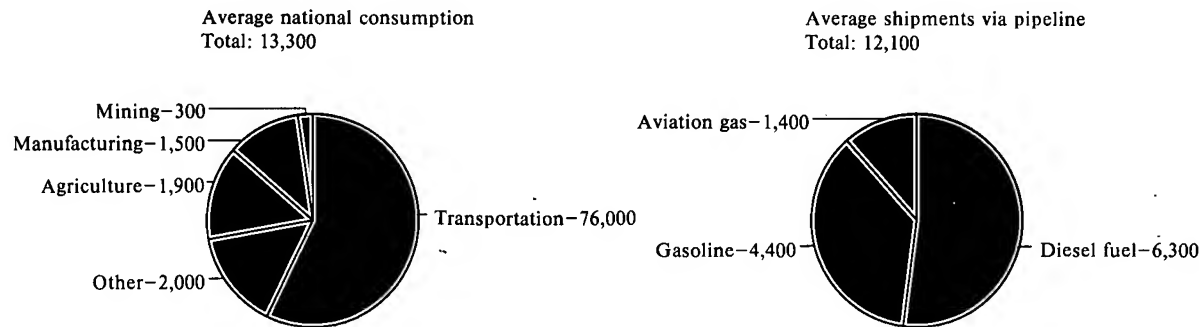
Lonrho is anxious to improve the delivery system. The firm's chief executive, Tiny Rowland, recently proposed rebuilding the oil storage tanks at Beira, reconditioning related port facilities there, and building new storage facilities at the pipeline's terminus in Mutare.

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**Figure 1**  
**Zimbabwe's Fuel Consumption Rates and Imports by Pipeline**

Barrels per day



Note: These figures include gasoline, diesel oil, aviation fuel, and domestically produced ethanol. They were derived from a study published by the World Bank in June 1982, which was based on data available through 1980. We judge that comparable 1984 figures will be only slightly higher because of the stagnation of the Zimbabwean economy over the past two years.

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the Feruka refinery could be made operable at a cost of about \$40 million. We estimate that the actual expense would be more than double this figure, however, because the refinery would have to be modified to produce greater quantities of diesel fuel and less gasoline to meet current consumption patterns and to process heavier oil than the Iranian light crude for which it was designed. Even then, the small size of the Zimbabwean market might raise operating costs to a level well above the price of imported products.

We believe Harare eventually may restore and nationalize the refinery despite the high cost as part of its effort to lessen its dependence on South Africa for refined products. In the event that the pipeline is cut, an operable refinery would allow Zimbabwe to import crude oil (which is not produced in South Africa) from overseas suppliers, although it probably would still have to rely on South Africa for transport.

Harare took over responsibility for procuring the country's fuel supply in 1983. A parastatal purchasing agent, the National Oil Company, replaced the Zimbabwe Oil Procurement Consortium (ZOPCO), which was made up of Mobil, Caltex, British Petroleum, and Shell.

#### Geography of the Pipeline

The pipeline, which is 288 kilometers long and 27 centimeters (10.6 inches) in diameter, follows a highway and railroad along the shortest route from the sea to Zimbabwe (see map at end of text). Beginning at sea level at Beira, the line—which for most of its

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**Harare's Petroleum Stockpile**

*Zimbabwe created a strategic stockpile of petroleum in 1983 to reduce its vulnerability to a disruption of supply. [ ] the goal is a 90-day supply of gasoline and diesel oil; no arrangements have been made for stockpiling aviation fuel. The oil has been dispersed around the country to storage tanks in Harare, Mutare, Gweru, and other cities, making it more difficult for saboteurs to destroy the reserve. This is cheaper than constructing new facilities, but Harare has spent much of its scarce foreign exchange on the fuel itself. [ ]*

*The stockpile reached its highest levels in early October 1983—a 97-day supply of gasoline and an 82-day supply of diesel fuel—but has dropped since then, [ ] Recent foreign exchange constraints have forced Harare to reduce oil imports and to consume fuel from the stockpile. Fuel levels diminished to a 57-day supply of gasoline and a 71-day supply of diesel fuel in early February 1984. [ ]*

length is underground—first passes through the wet plains of central Mozambique and then rises 1,000 meters through the western highlands to reach the Zimbabwean border at Mutare. It crosses two major rivers: the Pungue, approximately 65 kilometers from Beira, and the Revue near the border. Several towns and numerous small villages dot the course of the line through the sparsely populated countryside. Significant roads intersect the route at only three points: the national highway from Maputo crosses at Inchope near the midpoint of the pipeline; lesser roads converge or cross near Beira and at Chimoio in the west. [ ]

Beira is Mozambique's second-largest city and port, and its harbor is in the mouth of the Pungue River. The port facilities have suffered from Mozambique's inability to replace the skills lost with the departure of the Portuguese at the time of independence in 1975 and from neglect by a regime preoccupied with combating insurgency. Silting from the river requires regular dredging of channels to permit medium-sized oil tankers to enter. When the pipeline was scheduled

to reopen in late 1981, the port was so clogged with silt that Maputo had to insist that vessels delivering petroleum unload within a four-hour period at high tide—a condition [ ] nearly impossible to meet. The harbor has been dredged since then, but the port continues to suffer from inefficiency, deterioration, shortages of technicians, and sabotage. [ ]

The pumping station and storage tanks near the harbor constitute the first of three major facilities along the pipeline. The tanks—half of which were sabotaged by a South African raid in December 1982—can be bypassed by pumping petroleum directly from ships into the pipeline. [ ]

[ ] The smooth operation of the line throughout most of 1983 indicates that the limited storage capacity at Beira is not a bottleneck. [ ]

For the first third of its length, the pipeline runs northwest of Beira through swamps and broadleaf evergreen forests. The course parallels the Pungue River and passes through areas of sugarcane, bananas, and timber operations. The river and swamps flood to reach their maximum extent in January and February. The line crosses the Pungue River attached to a highway bridge and continues through marshy countryside. [ ]

The swamps end near the town of Vila Machado, and the next one-sixth of the pipeline passes through dry savanna grasslands. The plains give way to forested hills near the midpoint of the line, where the climb toward the border begins. The evergreen forests become dense in the higher and wetter altitudes. [ ]

Not long after entering the hills, the pipeline reaches the pumping station near Maforga—the second major facility along the line. [ ] this is a small installation, consisting of fence-secured pump houses and several dwellings for technicians. It is located about 3 kilometers from the highway, the railroad, and the small town of Maforga. [ ]



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The western half of the pipeline beyond Mafora passes through increasingly rugged hills and dense foliage. Peaks near the border in this area are nearly 2,000 meters high, and slopes are steep. The line crosses the Revue River and Reservoir—apparently attached to two major highway bridges—approximately 30 kilometers before reaching the border. [ ]

- Critical facilities—the pumping stations, bridges, and storage tanks—probably are all guarded sufficiently to deter or thwart small insurgent attacks not directly aided by South Africa.
- Virtually any point along the line could be destroyed by a large insurgent force or a determined South African attack. [ ]

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Once in Zimbabwe, the line passes south of Mutare to end at the last major facility along the pipeline, the storage tanks of the now inoperable refinery in Mutare's western suburb of Feruka. From there the fuel is shipped onward by road or rail. [ ]

The central and western portions of the pipeline pass through traditional RENAMO strongholds. Less than 100 kilometers north of the center of the line, for example, is Gorongosa mountain, the site of RENAMO's first base deep inside Mozambique. The guerrillas' mountaintop camp there was overrun by Mozambican troops in October 1979, but the insurgents remain active in the surrounding area. [ ]

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#### Vulnerability to Sabotage

The system's vulnerability to sabotage depends on the terrain, the deployments of Mozambican and Zimbabwean troops, and the proximity of insurgents of the National Resistance of Mozambique (RENAMO)<sup>1</sup> and commandos from South Africa:

- Isolated sections of the line are vulnerable to attacks that could shut down the system for days at a time.

Most of the pipeline is underground in relative safety.

[ ] some sections are difficult to patrol on the ground and would have to be monitored from helicopters. [ ]

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<sup>1</sup> RENAMO is a Portuguese acronym for the National Resistance of Mozambique, an insurgent group that since late 1977 has been fighting the Mozambican Government and attacking economic targets. It consists of about 12,000 guerrillas—6,000 to 8,000 of them armed—operating in at least nine of Mozambique's 10 provinces. The group originally received aid from the white regime in Salisbury, but after Zimbabwean independence Pretoria took over its sponsorship. Although RENAMO has failed to develop an effective political organization, it has been able to maintain the military initiative in Mozambique. [ ]

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The western half of the line is the most vulnerable to covert attack. The dense forests provide good concealment for attackers, and the steep hills and mountains afford them the relative safety of inaccessible terrain. Conditions along most of the eastern portion of the line also generally favor sabotage, especially during the November-March rainy season when the cloud cover increases and the ground is less passable. Only in the central grasslands do conditions favor the pipeline's defenders, particularly during the dry season when the withered grass provides little concealment. [ ]

The most critical points are the pumping stations at Beira and Maforga, without which the pipeline cannot operate. An attack on the pumps at Beira, however, would risk a rapid response by nearby Mozambican forces, and escape from that populated and patrolled area probably would be difficult. An attack at Maforga would be more damaging because of the greater difficulty and time required to get new pumps or parts to that remote location [ ]

[ ] The pumps are surrounded by a double fence, but the military positions are poorly placed for guarding the pumps. Moreover, the site's location would facilitate escape by the saboteurs. [ ]

Next in importance are the three major bridges over the Pungue River and the Revue Reservoir, and numerous other small bridges, where lengths of pipe are exposed and the bridges are essential to support the line. [ ]

Some storage tanks at the pipeline's western terminus at Mutare are essential to receive and temporarily hold the fuel, but an attack against them would not be easy. The Zimbabwean 3rd Brigade nearby has an estimated six battalions with which to protect the depot, even though it has contributed two of the three battalions now in Mozambique. [ ]

The remaining oil tanks in Zimbabwe and at Beira are important parts of the system, but it would be almost impossible to destroy enough of them to affect the operation of the pipeline. [ ]

### Defenses

The Mozambican Army protects the eastern portions of the pipeline and has 1,000 or more troops in the general area. The headquarters of the 5th Motorized Infantry Brigade and at least one subordinate battalion are located in Beira, although tactical units operate elsewhere from time to time. Also in Beira is the Sofala Province Command, which has control of the 5th Brigade's units and several other battalions. [ ]

Mozambique has other military forces near the center section of the pipeline. The 3rd Motorized Infantry Brigade and at least one battalion are stationed at Chimoio, capital of Manica Province and only 25 kilometers west of the pumps at Maforga. The Manica Province Command and the headquarters of the 1st Border Guard Brigade, whose troops are mostly located along the Zimbabwean border, are also in Chimoio. [ ]

We believe that the units used to guard the pipeline may be understrength. The province commands have the authority to dispatch forces to a scene of trouble quickly because Maputo has recently decentralized responsibility for counterinsurgency operations. Mozambican units generally move by road, and RENAMO in the past has successfully ambushed reinforcements rushing to the location of an attack. [ ]

As many as 2,000 Zimbabwean troops in Mozambique defend roughly the western half of the pipeline and have proved to be aggressive and reasonably effective fighters, at least against the lightly armed RENAMO. Zimbabwe sent its own units to guard the pipeline in November 1982 when the overextended Mozambican Army proved unable to stop the sabotage. Three battalions were formed to defend the line and portions of the Zimbabwean border with Mozambique's Tete Province to the north. [ ]

[ ] Most of the Zimbabwean units probably are positioned along the pipeline in company- and platoon-size units (100 and 30 men respectively). In addition, elements of Zimbabwe's Parachute Group—the former Selous Scouts—were used as a cross-border, quick-reaction force against [ ]

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RENAMO in August 1983, [redacted]  
[redacted] and may have been sent to patrol the  
road from Zimbabwe to Malawi through Tete Prov-  
ince in January 1984. [redacted]  
[redacted]

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## History of Sabotage

### South African Attacks and Contingency Planning

[redacted] a team of South  
African commandos carried out the first major attack  
on the pipeline on 29 October 1981, shortly before it  
was to reopen following the long closure during the  
Rhodesian conflict. By destroying the center span of  
the major highway bridge—which supports the pipe-  
line—over the Pungue River about 65 kilometers  
northwest of Beira, the commandos kept the pipeline  
closed for another eight months. [redacted]  
[redacted]

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were as low as \$10 million. Zimbabwe's in-country  
fuel stocks were so low at the time of the attack that  
massive dislocations to transportation and industry  
resulted. [redacted]

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Although RENAMO publicly claimed credit for the  
attack, the saboteurs demonstrated more technical  
skill than we believe the insurgents could muster, and  
we believe the South Africans were responsible. [redacted]  
[redacted]

We believe that Pretoria also was responsible for this  
attack. Although RENAMO again publicly claimed  
credit for the raid, [redacted]

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about 300 meters of pipe were wrecked by the collapse  
of the bridge, which was a sturdy structure of compos-  
ite steel and reinforced concrete. [redacted]

As in the demolition of the  
bridges, the attack demonstrated more technical skill  
than was likely to have been available to the insur-  
gents. The saboteurs cut through the metal fence on  
the seaward side of the facility and expertly attached  
explosives and timed detonators to selected tanks,  
[redacted]

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The second major attack, on 9 December 1982,  
destroyed at least half of the oil storage tanks near  
Beira harbor, closing the pipeline for a month. [redacted]

[redacted] at least 28 tanks had  
been ruined, and journalists who inspected the area  
reported that as many as 40 tanks had been hit.  
Extinguishing the blaze required several days. A  
senior Zimbabwean official estimated the replace-  
ment cost of the tanks and 900 meters of damaged  
pipes at about \$25 million, although other estimates  
[redacted]

The South African military has long been prepared to  
disable the pipeline permanently if ordered to do so.  
[redacted]

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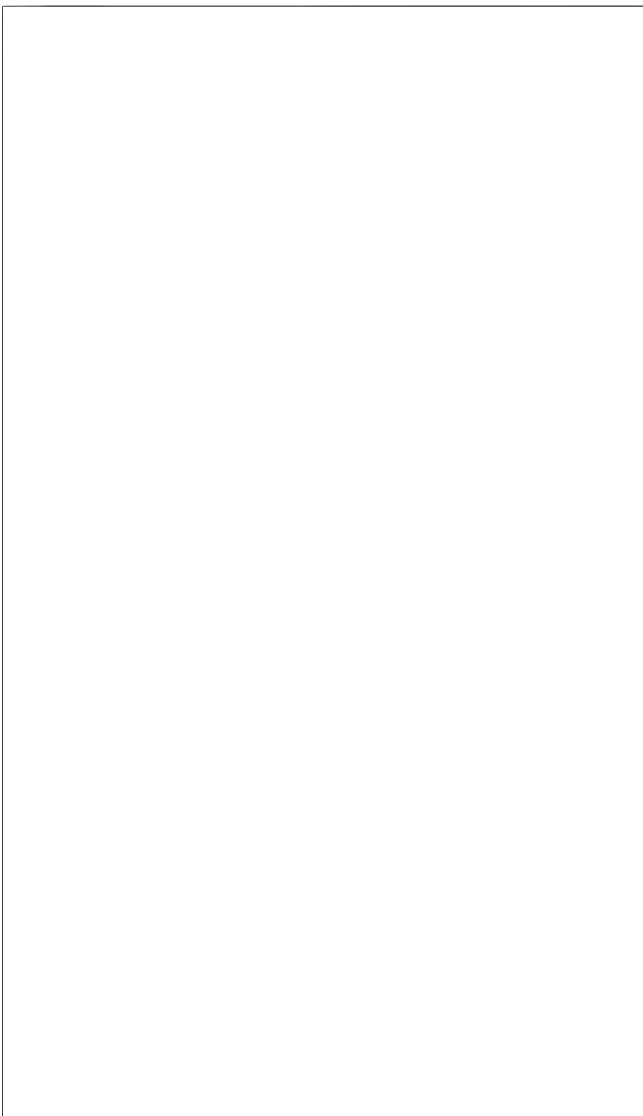
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South Africa has other options for future attacks. Should Pretoria be willing to attack the line openly, with no chance of plausibly denying responsibility, it could use airstrikes to knock out a pumping station, tank farm, or—with greater difficulty—a bridge. The pipeline is approximately 450 kilometers from the South African border, and a sabotage team could be delivered by a transport aircraft, helicopter, or naval vessel. 



#### **Insurgent Harassment**

In the 13 months between the raids on the Pungue River bridge and Beira, we believe that RENAMO carried out at least six successful attacks on the pipeline, shutting it down for periods ranging from one day to a month and eventually forcing Zimbabwe to deploy troops to Mozambique. 

 an insurgent attack in September 1982 so unnerved technicians at the Mafora pumping station that they refused to return until Mozambique promised to station 50 soldiers

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there. The troops never arrived—or they left quickly—because on 10 October 1982 RENAMO again sabotaged the facility and kidnaped three Portuguese technicians with their families. Refusing to accept Mozambican guards, Lonrho then demanded Zimbabwean protection. [REDACTED]

[REDACTED] Although RENAMO did sabotage the line in March and tried to do so in April, we have no other confirmed reports of attacks until January 1984, when another attack occurred. A RENAMO press release claimed that the insurgents hit the line about 75 kilometers east of Maforga on 21 November 1983, but we detected no signs at the time of problems in operating the system. [REDACTED]

#### Motives

In our view, Pretoria has regarded attacking the pipeline as an effective way of reminding Harare of its ability to wreak havoc and of keeping Zimbabwe weak and economically dependent on South Africa. The attacks make Zimbabwean leaders apprehensive and insecure, force Harare to spend more on defense and to defer programs that might otherwise strengthen the country politically and economically, and enhance South African profits from the sale and transport of petroleum. [REDACTED]

Although neither the attack on the bridges nor the one at Beira forced Harare to soften its rhetoric or to participate in publicized ministerial-level meetings with South Africa, Mugabe did allow Pretoria to station representatives of its civilian and military intelligence agencies in Harare. Delegations of South African and Zimbabwean intelligence, military, and police officials now meet every three months. [REDACTED]

[REDACTED] Pretoria has even publicized one of these meetings, much to the discomfort of the Zimbabweans. [REDACTED]

These developments suggest that the sabotage and implicit threat of further attacks on the pipeline have contributed to South African success in gaining concessions from Zimbabwe that are important to South African security and political interests. Pretoria appears relatively satisfied with the liaison channels that have been established and with Harare's tight reins on the ANC in Zimbabwe. For the time being at least, South Africa evidently views as less important the direct control over Zimbabwe's fuel supply and the profits that could be gained by disrupting the pipeline again. [REDACTED]

Zimbabwe's concessions—and the presence of Zimbabwean troops in Mozambique, which increase the costs and risks of attacking the pipeline—are only two of the factors that may explain South Africa's evident restraint with regard to the pipeline throughout 1983. The lull might also reflect Pretoria's desire not to create sympathy for Zimbabwe or to incur US displeasure at a time when Harare's own actions—for example, harsh treatment of the country's large Ndebele minority and anti-US positions at the UN—were undercutting support for Zimbabwe in the West. [REDACTED]

#### Recent Developments and Outlook

The lull in attacks on the pipeline was broken on 29 January 1984. A RENAMO force estimated by the Zimbabweans to total 100 insurgents routed 30 Zimbabwean troops camped beside the pipeline 10 kilometers from the Maforga pumping station and blew up a

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valve connection and a section of the line. Excavation and repairs apparently took four or five days. [REDACTED]

[REDACTED]

We have been unable to fix responsibility for the attack, but RENAMO could have acted on its own in order to demonstrate its independence of South Africa. The attack occurred just after the first of a series of meetings between South African and Mozambican officials on economic and security issues, which included a proposal by Maputo for reciprocal restraints on RENAMO and the ANC. RENAMO publicly threatened before the attack that it would step up its sabotage if it were not included in the bilateral negotiations. [REDACTED]

The deliberate destruction of the valve connection and the overall effectiveness of the attack, however, smack of South African involvement. The attack roughly coincided with two recent South African demarches in Harare; this fit the pattern of past South African behavior in combining negotiations, threats, and force. [REDACTED]

[REDACTED]

If the attack in late January reflects a decision by Pretoria to end its moratorium on sabotage of the pipeline, the Zimbabwean and Mozambican armed forces deployed near the line probably could not stop the South Africans. Pretoria would have to plan future operations carefully, however, and allot more resources than were necessary in the past. We believe that the skills of the South Africans, the probable support of the insurgents, and the likelihood that the attackers would be able to capitalize on surprise would be sufficient to overpower the defenders. The insurgents probably would not attempt a single crippling attack on their own, but they could easily sustain a campaign of frequent, small-scale sabotage. [REDACTED]

In the event of a disabling attack on the pipeline, the shock would be cushioned initially by Zimbabwe's stockpile of diesel fuel and gasoline. Although we do not know how long it would take to repair or replace the pumps at Mafora or Beira, we doubt that the facilities could be restored promptly enough to enable Harare to avoid exhausting its stockpile or having to turn to South Africa for additional supplies. Longer term effects would depend on the duration of the shutdown and Pretoria's willingness to allow deliveries through South Africa. [REDACTED]

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